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consult a zoölogy full of technical terms and anatomical figures is not usually attractive to the beginner. Given a book that is clear, concise and correct, but not too technical, such a reader would be led further in the same direction and, what is very important, would not have to unlearn.

The question naturally arises, does this book carry out the design? The author has in the main succeeded in writing a very readable book marked by a pleasant and interesting style; yet there are a few places where, through a faulty mode of expression, the meaning is rendered obscure, *e. g.* "Animals develop to a higher point, in which the body layers develop complicated organs, usually go through a larval stage very different in appearance from the adult" (p. 74). Other obscure sentences refer to the germ layers (p. 30), and the openings of the thoracic duct (p. 45).

In the compilation of a brief introductory text-book we can hardly expect to find the pages entirely free from errors; and, while in the main, the author presents a correct statement of our zoölogical knowledge, several errors have found their way into the book. For example, bone is said to be found in the cuttlefish (p. 43), though we find on p. 228 cartilage correctly given. The paranucleus of the Ciliata is confused with the nucleolus (p. 138). On p. 180 the Dendrocœla are stated on one line to be mostly fresh-water forms and a few lines further down to be mostly marine. A similar contradiction appears on p. 186, where we read 'The Entomostraca * * * are mostly fresh-water forms,' while, of the examples given, all are marine. On p. 198 there are two errors: the Chilognatha have 'two pairs of legs on each segment,' and of the thorax and abdomen of insects, it is stated that 'both have the segments completely fused.'

What seems a serious fault in the plan of the systematic part is the defining a group or Phylum by means of types, which are themselves not sufficiently described. Chapter IV. will illustrate this: The Echinoderms are defined as 'animals more or less resembling in structure the sea-urchin.' One who had never seen a sea-urchin would naturally expect to find a figure with which to compare the other

forms of the Phylum; but there is none given, and the brief description would hardly serve his purpose. Had there been an anatomical figure and a more detailed description of each of the types selected, the book would be more useful to the ordinary reader.

The chapter on the Cœlenterata is perhaps the most unsatisfactory. The difficult group of the Cnidaria is best understood by treating the simpler Hydrozoa first and then the Scyphozoa; instead we have the arrangement as given by Claus and Sedgwick, and there is, as well, a lack of clearness and definite system. We think the book would have been improved by giving more attention to the Vertebrates. The description of the mammals is mostly confined to a discussion of the teeth, which subject, important as these organs are, is not likely to attract the reader or satisfy him in lieu of some other details which would naturally occur to him in comparing the various orders of mammals.

Notwithstanding the criticism of these, and certain other errors which should be corrected, we believe that the book will prove of value to the reader and, in the hands of a teacher who can amplify and explain, would serve as a good text-book where principles, rather than a detailed learning of systems and names, are desired.

The book is attractively and clearly printed. The text is quite free from typographical errors; we notice only 'infusoriæ' (p. 67), 'Arthropoids' (p. 186), 'fore' for four (p. 267). The numerous cross references are correctly given except that 'fig. 12' should be fig. 121 (p. 299). The 'List of Illustrations' shows, however, careless proof reading, for no less than nine of the figures are referred to the wrong page. In the contents there are two more errors, and we presume that of the original figures No. 133 should be No. 123. W. M. RANKIN.

SCIENTIFIC JOURNALS.

THE AMERICAN GEOLOGIST, JANUARY.

DR. C. E. BEECHER presents a sketch of James Dwight Dana, in which attention is called to the varied faculties and broad scientific knowledge of the man, but no attempt is made to give a complete account of his life. Special

note is made of his ability to carefully weigh scientific evidence and of his unprejudiced position and final decision concerning the doctrine of evolution. A portrait and a bibliography accompany the sketch.

Mr. Warren Upham, in an article on 'Physical Conditions of the Flow of Glaciers,' describes the veined or ribboned structure and the granular structure of glaciers and ice sheets, with a review of the theories of Forbes and Tyndall to account for glacial motion. Preference is given to the recent granulation theory of Deeley and Fletcher; and the lamination of the Greenland and Antarctic ice sheets is attributed, like that of Alpine glaciers, to the differential shearing movement of the ice layers, with varying decrease, growth and shear of contiguous ice granules.

Some phenomena presented by floating sand are discussed by Prof. F. W. Simonds. He records an instance of the floating of a considerable amount of sand on the Llano River of Texas, and he also states the results obtained by artificially floating sand of various materials and degrees of fineness.

Mr. Oscar H. Hershey describes the ancient river deposits of the Spring River valley in Kansas and outlines the Quaternary history of this stream.

Prof. E. W. Claypole, in an article entitled 'The Timepiece of Geology,' rapidly sketches the rise of paleontology and the use of fossils in determining the age of strata. The application of this means of fixing the age of various rocks is rapid and easy, but the final test is stratigraphy.

In an editorial comment Mr. Upham notices the shell-bearing sand and clay beds between deposits of till at Clava, Scotland. The interglacial fossiliferous beds he thinks to be modified drift, like the similarly shell-bearing sand and gravel of Cape Cod. In neither case would he consider the enclosed marine fossils to be evidence of submergence, instead of which the shells and their fragments are referred to glacial erosion from old sea beds and transportation in the ice sheets to altitudes where they are now found.

Under 'Correspondence' Prof. W. B. Scott writes concerning the term 'Goodnight Beds,'

proposed for a division of the Texas Tertiary by Mr. W. F. Cummins.

PSYCHE, JANUARY.

A. P. MORSE begins a review of the *N. E. Tryxalinæ*, giving tables for the determination of the 8 genera and 15 species; three of the genera are new. H. G. Dyar describes and discusses an arctic Lymantriid larva found on Mt. Washington, N. H., which he suspects is *Dasychira rossii*. C. H. Tyler Townsend gives a table for the determination of the 12 species of *Exorista* from temperate North America known to him, describing one of them as new; and F. H. Harvey gives some notes on *Smerinthus cerysii* with a description of some of the early stages.

SOCIETIES AND ACADEMIES.

ENTOMOLOGICAL SOCIETY OF WASHINGTON.

A SPECIAL meeting was held December 26th in the assembly hall of the Cosmos Club under the auspices of the joint commission of the scientific societies of Washington, on the occasion of the annual address of the retiring President, Mr. Wm. H. Ashmead. Major J. W. Powell, of the joint commission, presided. Mr. Ashmead's subject was 'The Phylogeny of the Hymenoptera,' which he treated at length, giving his ideas as to the position of the Hymenoptera in the class Insecta, and as to the relative position of the several families of the order.

The 113th regular meeting was held January 2d. The following officers were elected for the year 1896: President, C. L. Marlatt; Vice-Presidents, Theodore Gill and H. G. Hubbard; Recording Secretary, L. O. Howard; Corresponding Secretary, Frank Benton; Treasurer, E. A. Schwarz; Additional Members Executive Committee, W. H. Ashmead, D. W. Coquillett and C. W. Stiles.

Mr. Schwarz presented a paper on the semi-tropical insect fauna of Texas. He referred to the fact that he had made a short visit to the region in question in 1895, and said that the fauna west and south of the Guadalupe River, and which extends across the Rio Grande into the Mexican States of Coahuila and Tamaulipas, is by no means semi-tropical in its character. It is simply a subdivision of the lower Sonoran